

**Revised TMDL Implementation Plan
HUC 0307010107 - Oconee River (Barnett Shoals to Lake Oconee)
August, 2003**

HUC 0307010107 is located primarily in Greene and Oconee counties. A small portion of the watershed is located in Oglethorpe County.

The stream segment of concern in this TMDL implementation plan is the Oconee River from Barnett Shoals to Lake Oconee. The segment is listed on the Georgia 303(d) list as partially supporting its designated use due to excessive fecal coliform. The pollutant of concern is fecal coliform. The stream segment is downstream of HUC 0307010106, the Oconee River from its confluence to Barnett Shoals. All of the tributaries of the Oconee River are also listed as not supporting or partially supporting their uses due to fecal coliform. The watershed drains to Lake Oconee, an impoundment of the Georgia Power Company. Although constructed for the purpose of generating hydropower, Lake Oconee is a major recreation destination for many people from within and outside Georgia. Swimming, boating, and fishing are popular recreational activities.

The stream was listed on the Georgia 303(d) list of impaired water bodies after sampling events in 1999. A Total Maximum Daily Load was established by EPA for the entire Oconee River basin in February, 2002. It recommends a reduction in the fecal coliform loading on this segment of the Oconee River of 35%. Separate TMDL's and TMDL implementation plans were prepared previously for the tributaries Fishing Creek, Town Creek (Greene County), and Greenbriar Creek (Oconee and Greene counties).

Land use in the watershed is composed mostly of forest land with some agriculture and residential development. The river segment undoubtedly receives significant input of fecal material, especially in wet weather, from Oconee County and Athens-Clarke County and other areas upstream. Addressing fecal loading in this segment therefore will be dependent on implementation of the TMDL plans for the upstream HUCs.

Input from stakeholders indicated the following information about the watershed:

- The drainage in northeast Greene County, feeding Sandy Creek, Harris Creek, and Fishing Creek is rugged land, mostly forest, with few residences and very little agriculture. Significant contributions of fecal pollution from human activity is unlikely from this source.
- The western arm of the HUC drains to Greenbriar Creek. Greenbriar Creek was on the list of impaired waters in 1996, and a TMDL and implementation plan were prepared for it. An intensive program of agricultural BMP's, coupled with changes in land use (a major suspected polluter ceased operation), succeeded in reducing fecal concentrations. Greenbriar Creek is now listed as supporting its designated use, and projected development under Oconee County's land development regulations, plus continued agricultural BMP implementation, should not result in excessive fecal loading.

- The remainder of the watershed drains to Town Creek. There are a few, scattered residences in the basin. The remainder of the basin is covered with forest and in fact a significant portion at the lower end is in the Oconee National Forest. Town Creek has extensive swamps and wetlands created by soil erosion experienced during the 19th and early 20th centuries and augmented today by a very healthy beaver population. There is an active program to implement agricultural BMPs to farming operations in the basin that has been in place since 1994.
- None of the area is served by sewer. Any residences rely on septic tanks. The possibility that some of the very few residences in the drainage have not installed septic systems of any kind must be considered.
- The Greene County land development regulations provide for the minimum 25-foot natural riparian buffer adjacent to perennial streams, but otherwise do not contain any storm water quality requirements.
- It is not known how many illicit connections to storm drains, failed septic tanks, or cases of outright lack of treatment there may be in the basin.

Implementation

The plan identifies the following steps for load reduction:

- Continued implementation of recent and proposed ordinance adoptions and revisions.
- Detailed targeted sampling of the streams to localize the sources of pollutant, beginning with a general survey and following on with more and more localized and detailed sampling until specific sources can be identified.
- Implementation of BMP's specific to the identified sources, including septic tank education and maintenance, sewer leak detection, extension of sewer lines as feasible to take out poorly-functioning septic tanks, and Nutrient Management Plan implementation on agricultural operations.
- Ongoing educational efforts will proceed under the auspices of Greene County, the NRCS, Agricultural Extension, and the City of Greensboro. These will include identifying and contacting failed septic tank owners and educating them about the need for maintenance of septic tanks; continued promotion of agricultural BMP's.
- The effectiveness of the implementation plan should be evaluated after five years by incorporating the implementation activities that have taken place, updated land use information, and additional monitoring data into the BASINS model with which the TMDL was prepared.
- The Greene County Health Department has been aggressively reducing fecal coliform discharges for several years. Failed and absent septic systems are being addressed through education and, in extreme cases, legal action. The long-standing practice in the county of discharging septic tank pumping trucks ("honey wagons") into the headwaters of streams has been eliminated. Oconee County

reports the same level of aggressive enforcement of the health code pertaining to septic tanks.

STATE OF GEORGIA REVISED TMDL IMPLEMENTATION PLAN WATERSHED APPROACH

Oconee River Basin

Local Watershed Governments

Northeast Georgia RDC

Oconee County

Greene County

Oglethorpe County

City of Maxeys

City of Woodville

TMDL Implementation Plans are platforms for establishing a course of actions to restore the quality of impaired water bodies in a watershed. They are intended as a continuing process that may be revised as new conditions and information warrant. Procedures will be developed to track and evaluate the implementation of the management practices and activities identified in the plans. Once restored, appropriate management practices and activities will be continued to maintain the water bodies. **With input from appropriate stakeholder groups, a TMDL Implementation Plan has been developed for a cluster of impaired streams and the corresponding pollutants.** The impaired streams are located in the same sub-basin identified by a HUC10 code (Figure 1).

This Implementation Plan addresses an action plan, education/outreach activities, stakeholders, pollutant sources, and potential funding sources affecting the sub-basin. In addition, the Plan describes (a) regulatory and voluntary practices/control actions (*management measures*) to reduce target pollutants, (b) milestone schedules to show the development of the management measures (*measurable milestones*), (c) a monitoring plan to determine the efficiency of the management measures and measurable milestones, and (d) criteria to determine whether substantial progress is being made towards reducing pollutants in impaired waterbodies. The overall goal of the Plan is to define a set of actions that will help achieve water quality standards in the state of Georgia. Following this section is information regarding individual segments.

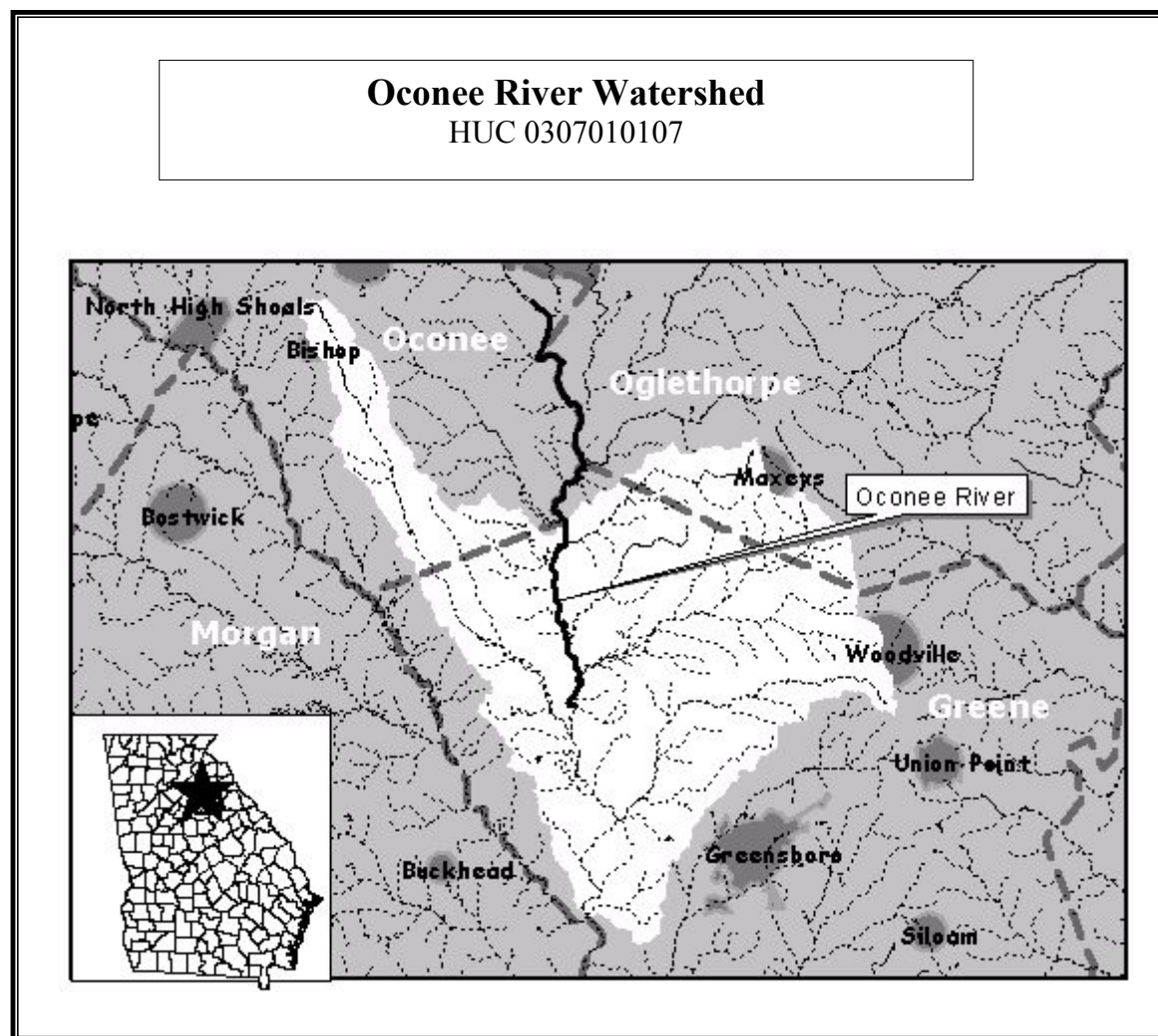


FIGURE 1

Impaired Waterbody*	Impaired Stream Location	Impairment
1. Oconee River	Barnett Shoals to Lake Oconee	Fecal Coliform

*These Waterbody Numbers are referenced throughout the Implementation Plan.

Action Plan for Oconee River Watershed

POLLUTANT:	SOURCE:	EFFECT:	WHAT CAN I DO?	
			At Home: Community, School	At Work: Business, Government
<input type="checkbox"/> Dissolved Oxygen (DO)	<input type="checkbox"/> Industrial	<input type="checkbox"/> Habitat		
<input checked="" type="checkbox"/> Fecal Coliform (FC)	<input type="checkbox"/> Urban	<input checked="" type="checkbox"/> Recreation		
<input type="checkbox"/> Sediment	<input checked="" type="checkbox"/> Agriculture	<input checked="" type="checkbox"/> Drinking Water		
<input type="checkbox"/> Metals	<input type="checkbox"/> Forestry	<input type="checkbox"/> Aesthetics		
<input type="checkbox"/> Fish Consumption Guidelines (FCG)	<input checked="" type="checkbox"/> Residential	<input type="checkbox"/> Other (Please List)		
<input type="checkbox"/> Other (Please List)	<input type="checkbox"/> Other (Please List)			

INFORMATION/EDUCATION/OUTREACH ACTIVITIES

An education/outreach component will be used to enhance public understanding of and participation in implementing the TMDL Implementation Plan. List of all previous and planned information/education/outreach activities.

Responsible Organization Or Entity	Description	Impacted Waterbodies*	Target Audience	Anticipated Dates (MM/YY)
Greene and Oconee County Health Departments	Education of the public about maintenance of septic tanks.	1	Homeowners	Ongoing
Keep Oconee County Beautiful	Education of the public about water quality issues in general, including fecal coliform pollution	1	Residents, school children	Ongoing
NRCS	Ongoing educational programs on minimizing stream impacts of cattle, strategies for high-impact areas, nutrient management plans, and other BMP's for reducing fecal pollution.	1,2	Cattle and poultry farmers, dairy farms.	Ongoing
Cooperative Extension Service	Ongoing educational programs on minimizing stream impacts of cattle, strategies for high-impact areas, nutrient management plans, and other BMP's for reducing fecal pollution.	1,2	Cattle and poultry farmers, dairy farms.	Ongoing
Greene County, City of Greensboro, Greene County Health Department	Advisement to property owners of potential problems with septic tanks, requirements for septic tank maintenance, notification of identified septic tank problems when they are discovered.	1,2	Urban and rural residences.	09/03 and ongoing.

STAKEHOLDERS

EPD encourages public involvement and the active participation of stakeholders in the process of improving water quality. Stakeholders can provide valuable information and data regarding their community and the impaired water bodies and can provide insight and/or implement management measures.

List of local governments, agricultural organizations or significant landholders, commercial forestry organizations, businesses and industries, and local organizations including environmental groups and individuals with a major interest in this watershed.

[illegible]

WATER BODIES/STREAMS COVERED IN THIS PLAN:

These impaired streams are located in the same sub-basin identified by a HUC10 code. Most of the information contained in this section comes from the 303(d) list and has been completed by employees of the EPD Water Protection Branch. Data that placed stream on 303(d) list will be provided upon request.

Waterbody Name #1	Location	Miles/Area Impacted	Use Classification	Partially Supporting/ Not Supporting (PS/NS)
Oconee River	Barnett Shoals to Lake Oconee	16	Fishing	Partially Supporting
Primary County	Secondary County	Second RDC	Source (Point/ Nonpoint)	
Greene	Oconee and Oglethorpe		Nonpoint (Urban Runoff)	
Pollutants	Water Quality Standards	Required Reduction	TMDL ID	Date TMDL Established
Fecal Coliform	1,000 per 100 ml (geometric mean Nov-April) 200 per 100 ml (geometric mean May-Oct)	35%		February 2002

POLLUTANT SOURCES

It is important to recognize the potential source(s) causing water quality impairment. Each source must be controlled to comply with target TMDL/Load Allocations for each pollutant. Included is a description of how the sources contribute to the impairment and the waterbody that is impaired.

List of major nonpoint source categories and sub-categories or individual sources (Urban Runoff, Agriculture, Forestry, Municipal Sewage Treatment Plant)

Pollutant	Sources of Pollutants	Description of Contribution To Impairment	Impacted Waterbodies*
Fecal coliform	Wildlife	Extensive beaver swamps, national forest land probably contribute to impairment	1
Fecal coliform	Agriculture	Cattle farms where animals have direct access to water bodies. Runoff from wet-weather events. High impact areas discharging to streams in wet weather.	1
Fecal coliform	Residential septic systems	Failing septic tanks or illicit discharge to streams.	1
Fecal coliform	Septic tank pumping operations	Illegal discharge of waste from pumped septic systems. Largely eliminated by current policies, but some illegal dumping occurs.	1

MANAGEMENT MEASURES, MEASURABLE MILESTONES AND SCHEDULE

(i.e. Local codes and ordinances, Erosion and Sedimentation Control, Storm Water Management, Local water resource monitoring)

The following table lists management measures that have been or will be implemented to achieve water quality standards and the load reductions established in the TMDL. The management measures, including regulatory or voluntary actions or other controls by governments or individuals, specifically apply to the pollutant and the waterbody for which the TMDL was written. A description is provided of how these management measures are/will be accomplished through reliable and

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/Projected Date	Status	Regulatory/Voluntary
Permitting and inspection of septic tanks	Greene County Health Department, Oconee County Health Department	Issues permits for new septic tanks. Responds to complaints of septic tank failures. Prevents septic tank pump-out into streams.	Ongoing	Enforced	Regulatory
Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness		
Fecal coliform	Residential septic tanks	1	Effective		
Measurable Milestones		Schedule		Comments	
		Start	End		
All new septic tanks are permitted after inspection		Ongoing	Ongoing	Program is effective for new septic tanks. No control over existing sites.	
Department responds to all complaints of failed septic tanks.		Ongoing	Ongoing	Program is effective only for systems where complaints are filed. Available remedial action limited to fines	

effective delivery mechanisms, and how these management measures are/will help achieve the target TMDL. Included is the source of the pollutant, anticipated/past effectiveness of the management measure (very effective, somewhat effective, not effective), the current status (i.e. enforced, in-progress, planning), and measurable milestones and schedule. Milestones are used to measure progress in attaining water quality standards and to determine whether management measures are being implemented.

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Cattle farming BMP's	NRCS, Extension Service	Promotes BMP's to reduce direct contact. The EQUIP program, nutrient management plans, and other programs are available to farmers with some monetary assistance (cost sharing).	Ongoing		

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Fecal coliform	Animals with direct access to streams, heavy use areas with runoff direct to streams.	1	Very effective where implemented.

Measurable Milestones	Schedule	Comments
Start	End	
80% of agricultural operations will have implemented some or all BMP's targeted to reduce fecal coliform by 2014.	Ongoing 2014	BMP's are proven to be very effective where implemented. Barriers include cost to the property owner and lack of education.

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/Projected Date	Status	Regulatory/Voluntary
Land Development Ordinances	Greene County, Oconee County, Town of Bishop, Town of Watkinsville	Subdivision ordinances, zoning ordinances provide for minimum setbacks and natural vegetated buffers on streams.	Current	Enforced	Regulatory
Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness		
Fecal coliform	Urban runoff, septic tanks	1	Somewhat effective.		
Measurable Milestones	Schedule		Comments		
	Start	End			
All new development will meet setback and riparian buffer requirements.	Current	Ongoing	Riparian buffers are somewhat effective in reducing FC loads. Setback of septic tank drain fields is more effective.		

Management Measure	Responsible Government, Organization or Entity	Description	Enacted/Projected Date	Status	Regulatory/Voluntary
Targeted sampling for E. coli	Greene County, Oconee County, volunteers, GA EPD, NEGRDC	Systematic sampling of streams to identify sources of E. coli using methodology developed by the University of Georgia and supported by the Northeast Georgia Regional Development Center and Georgia EPD.	2004	Planned	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Fecal coliform	Septic, sewer leaks, agriculture, urban runoff.	1	Very effective in identifying sources.

Measurable Milestones	Schedule		Comments
	Start	End	
By 2005, the geographic areas of greatest concern will be identified for all listed streams in the watershed	01/04	12/04	

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/Projected Date	Status	Regulatory/Voluntary
Oconee River Basin Management Plan	Georgia EPD	Detailed management plan for the Oconee River Basin. The purpose of the plan is to develop and implement a river basin planning program to protect, enhance, and restore waters for the State of Georgia, which will provide for effective monitoring, allocation, use, regulation, and management of water resources.	Existing	To be revised 2003	Regulatory/Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Fecal coliform	Multiple	1,2	Very effective
Measurable Milestones		Schedule	
		Start	End
• Prepare/Update Draft River Basin Plan		2002	2003
		Comments	
		Plan revision due in 2003.	

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/Projected Date	Status	Regulatory/Voluntary
Georgia Water Quality Control Act (OCGA 12-5-20)	GA DNR EPD	Makes it unlawful to discharge excessive pollutants (sediments, nutrients, pesticides, animal waste, etc.) into waters of the State in amounts harmful to public health, safety, or welfare, or to animals, birds, or aquatic life or the physical destruction of stream habitats	1964	Enforced	Regulatory

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Fecal coliform	Multiple	1,2	Very effective
Measurable Milestones		Schedule	
		Start	End
EPD acts on complaints from affected parties		Ongoing	Ongoing
Detailed sampling of streams and tributaries		2003	2004
		Comments	
		Detailed geographic coverage of tributaries and reaches of concern to identify specific sources	

POTENTIAL FUNDING SOURCES The identification and discussion of dedicated funding is important in determining the economic feasibility of the above-mentioned management measures.

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MONITORING PLAN

The purpose of this monitoring plan is to determine the effectiveness of the target TMDL and the management measures being implemented to meet water quality standards. List of previous, current or planned/proposed sampling activities or other surveys. (Monitoring data that placed stream on 303(d) list will be provided if requested.)

Name Of Regulation / Ordinance Or Management Measure	Organization	Impacted Waterbodies*	Pollutants	Purpose/Description	Time Frame		Status (Previous, Current, Proposed)
					Start	End	
TMDL Evaluation	EPD	1	Fecal coliform	Monitoring data for Georgia 305(b)/303(d) List	1999	1999	Previous
TMDL Monitoring	EPD	1	Fecal coliform	Monitoring data for Georgia 305(b)/303(d) List	2004	2004	Proposed
Stormwater Monitoring	Watkinsville	1	Fecal coliform	Ongoing monitoring for effectiveness of stormwater program	2003	Ongoing	Current, Proposed
Targeted sampling	Greene County, Oconee County	1	Fecal coliform	Sampling to locate and identify sources of E. coli contamination	2004	2005	Current

CRITERIA TO DETERMINE WHETHER SUBSTANTIAL PROGRESS IS BEING MADE



The following set of criteria will be used to determine whether any substantial progress is being made towards reducing pollutants in impaired waterbodies and attaining water quality standards. Discussion on each criteria is recorded in the space provided. Additional relevant criteria are presented in comments.

Percent of concentration or load change (monitoring program) _____

If monitoring results show that it is unlikely that the TMDL will be adequate to meet water quality standards, revision of the TMDL may be necessary.

- Categorical change in classification of the stream (delisting the stream is the goal) _____

- Regulatory controls or activities installed (ordinances, laws) _____

- Best management practices installed (agricultural, forestry, urban) _____

COMMENTS

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The preparation of this report was financed in part through a grant from the U.S. Environmental Protection Agency under the provisions of Section 106 of the Federal Water Pollution Control Act, as amended.

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